Metrology Interoperability Standards
Can Save Time and Money

Location: Booth S-1044
(in the Emerging Technology Center, Grand Ballroom, 1st floor South Building)

Sponsors: The Automotive Industry Action Group (AIAG) Metrology Project Team (MEPT) and the National Institute of Standards and Technology (NIST)

Manufacturers and their suppliers would save hundreds of millions of dollars if dimensional measurement information could flow easily from part design to inspection program planning to inspection program execution to inspection results analysis.

The Interoperability Problem

Imagine the following situations:

> An automobile manufacturer needs to move model operations to another location. The new location has different inspection software. The inspection programs must be rewritten, resulting in **millions of dollars lost** due to product launch delay, additional labor costs, and loss of product quality.
>
> An automobile supplier wants to purchase an inspection probe from another vendor. He cannot, since his current coordinate measuring machine (CMM) will not interface with the other vendor's probe. His current CMM vendor offers to modify the system interface…but **the supplier can almost buy a new CMM for the price**!
>
> An aerospace corporation has spent lots of money training CMM operators on a particular inspection software package. They now want to use a new CMM. They cannot unless they get new inspection software from the new CMM vendor. **Heavy retraining and reprogramming costs inhibit freedom of choice.**
>
> An inspection software vendor **spends a large percentage of his or her programming costs** maintaining version compatibility with proprietary interface languages.

Dimensional metrology systems consist of the following components (see Figure 1): CAD software, inspection program planning software, inspection program execution software, CMM hardware, and inspection analysis software. Each component has products from multiple vendors. Can a user "design his own system" with components from different vendors? **Not easily, not cheaply, and sometimes not at all!** These systems typically do not communicate well with one another unless they all come from the same vendor. This is called the "interoperability problem," and is known to cause large and unnecessary costs to both users and vendors.

The Interoperability Solution

The dimensional metrology industry, through the **Automotive Industry Action Group** (AIAG) **Metrology Project Team** (MEPT), is working to ensure that the components in dimensional metrology systems talk fluently to one another, no matter where the components come from. The AIAG MEPT is helping industry develop consensus-based interface "languages" (specifications),

and when a single specification is agreed upon, software implementations are developed. The **National Institute of Standards and Technology** (NIST) designs and develops tests that are used to verify whether implementations of the specification actually conform to the specification.

The Interoperability Demonstration at Booth S-1044

At this booth, the Automotive Industry Action Group (AIAG) Metrology Project Team (MEPT) will demonstrate how the use of consensus-based interface language standards can save manufacturers and their suppliers both time and money. We will show a live execution of an inspection program connecting components from widely varying vendors, including many of the household names in dimensional metrology worldwide, such as LK, Zeiss, Hexagon Metrology (Sheffield), Wenzel, Tecnomatix, Hexagon Metrology (Wilcox), Metrologic, Metromec, Dimensional Control Systems (DCS), and Dassault (Delmia). Two important draft interface standards will be highlighted in the demonstration, I++ DME and DML (see Figure 1). A recurring live presentation describing the value of these and other standards will also form part of the demonstration.

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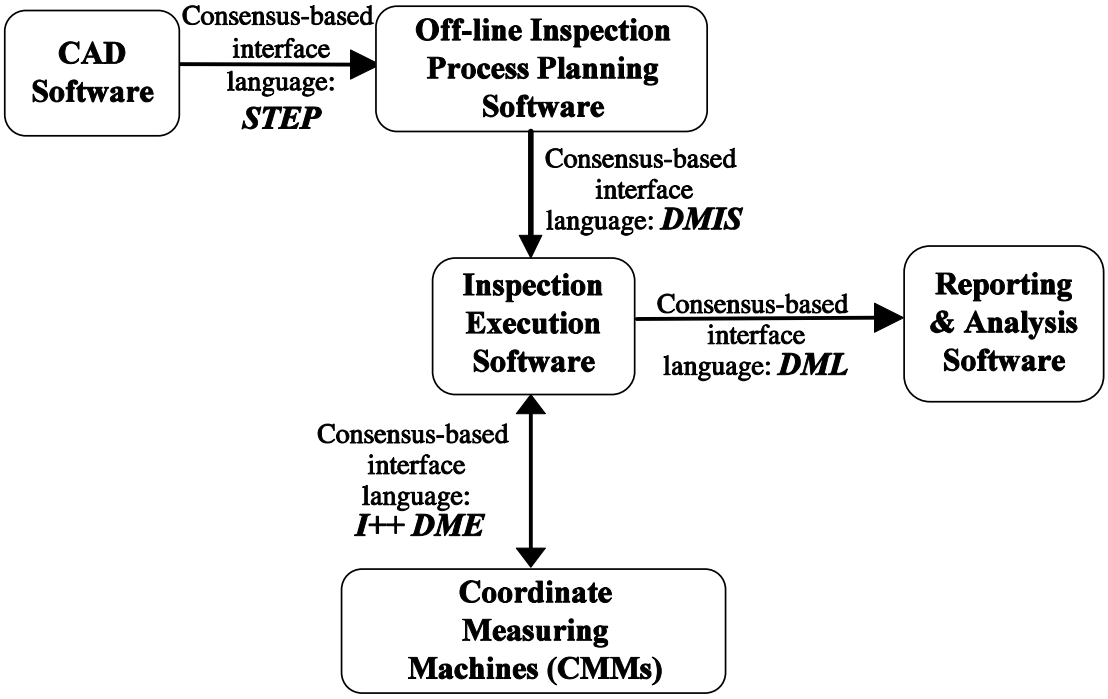

Figure 1: Dimensional inspection system components and the consensus-based languages for the interfaces between the components that are supported by the AIAG MEPT.